

REMARKS/ARGUMENTS

The Status of the Claims.

Claims 26 to 37, 40 to 42, 44 to 48, 60 and 61 are pending with entry of this amendment, claims 1 to 25, 38, 39, 43 and 49 to 59 being cancelled. Claims 26, 34 and 44 are amended herein. These amendments introduce no new matter and support is replete throughout the specification. These amendments are made without prejudice and are not to be construed as abandonment of the previously claimed subject matter or agreement with any objection or rejection of record.

The presently amended claims 34 and 44 are substantially the same as prior claims. The amendments merely further clarify that the compositions are characterized by their excitation and/or emission properties.

With regard to independent claim 26, the amendment is the incorporation of currently cancelled claims 38 and 39 into claim 26 without addition of subject matter.

Applicants submit that no new matter has been added to the application by way of the above Amendment. Accordingly, entry of the Amendment is respectfully requested.

The Election/Restriction Requirement.

Pursuant to a restriction requirement made final, Applicants cancel claims 1 to 25 and 49 to 59 with entry of this amendment. Please note, however, that Applicants reserve the right to file subsequent applications claiming the canceled subject matter and the claim cancellations should not be construed as abandonment or agreement with the Examiner's position in the Office Action.

35 U.S.C. §112, Second Paragraph.

Claims 26 to 42, 44 to 48, 60 and 61 were rejected under 35 U.S.C. §112, second paragraph, as allegedly indefinite for a composition "comprising" a property. Although Applicants believe the meaning is clear, the cited claims are amended to further

clarify that the compositions are characterized by the properties. Applicants respectfully request withdrawal of the indefiniteness rejections.

35 U.S.C. §103(a).

Claims were rejected under 35 U.S.C. §103(a) as allegedly obvious based on Cao et al. (Angew. Chem. Int. Ed., 1999, vol 38: 3692-94) in light of Bruchez et al, (U.S. 6,274,323); Cao in light of Bruchez '323 and Bruchez et al, (Science 1998, vol 281: 2013-16 - "Bruchez 1998"); and, Cao in light of Bruchez '323 and Weiss et al., (WO 00/55631). To the extent the rejection is deemed applicable to the amended claims, Applicants traverse.

Independent claim 26 has been amended to include the limitations of dependent claims 38 and 39 therein, e.g., to recite that the population of nanocrystals comprises two or more subsets of nanocrystals, the subsets characterized by different excitation wavelengths, wherein the emissions of the population comprise different wavelengths or different wavelength intensities when alternately excited with the different excitation wavelengths. Dependent claim 39 was rejected by the Examiner as allegedly obvious based on Cao, Bruchez '323 and Bruchez 1998. Applicants respectfully traverse.

According to *Graham v. John Deere Co.*, 148 USPQ 459 (1966), obviousness can only be shown by presentation of facts ascertaining the differences between cited prior art and the claimed art, in light of the level of skill in the art at the time. It is notable that the recent decision in *KSR International Co. v. Teleflex Inc.* held that the nature of the problem to be solved can not, in itself, strictly overwhelm other considerations with regard the requirement for the Office to provide a motivation to combine references. Controlling case law requires the Office to meet at least three requirements in stating a *prima facie* case of obviousness. First, the prior art reference must teach all of the limitations of the claims. M.P.E.P. § 2143.03. Second, there must be a motivation to modify the reference or combine the teachings to produce the claimed invention. M.P.E.P. § 2143.01. Third, a reasonable expectation of success is required. M.P.E.P. § 2143.02. The teaching or suggestion to combine and the expectation of success must be both found in the prior art and not based on Applicants' disclosure. M.P.E.P. §2143.

The present Action acknowledges that the Cao primary reference does not disclose at least a composition of two crystal species (e.g., claim 38), and does not disclose linking nanocrystals to an adherent matrix.

It is also not clear Cao necessarily (inherently) included excitation spectra comprising nonvisible wavelengths. Cao Figures 1 and 2 apparently represent standard absorbance spectra, not excitation spectra. The Action at page 6 states that absorbance spectra are excitation spectra based on comments of Skoog (Fundamentals of Analytical Chemistry pages 604-8). However, at page 609 of Skoog, and in Figure 23-4, an "excitation spectrum is derived by setting the emission monochromator at a fluorescence peak and scanning the sample with the excitation monochromator." On the other hand, it is well known in the art that an "absorbance spectrum" is different. Absorbance is measured as a comparison of the intensity of a beam of light measured before and after interaction with a sample. Confusion may arise because an excitation spectrum indicates wavelengths that are absorbed resulting in emissions, that is - Excitation absorbance is a subset of a composition's overall general absorbance. Contrary to the assertions in the Action, the "absorbance spectra" of Cao have not been shown to be spectra of excitation wavelengths. The spectra of Figure 1 appear to be standard absorbance spectra for the nanocrystals. In Figure 2, note that absorbances (dotted lines) are shown with energies less than the emission peak, which could not occur if they were excitation absorption spectra described by Skoog (for example there could be no signal measured at the emission peak from an absorbance of a lower energy wavelength). Because spectra of Cao are not excitation spectra, there can be no teaching of nanocrystals characterized by "at least a portion of the excitation spectrum are in the nonvisible range" and the rejections based on Cao must be withdrawn.

Further, the combination of Cao and Bruchez '323 fails to teach at least the additional independent claim limitations of a population of nanocrystals with the limitation of two or more subsets of nanocrystals mixed together in a single population, the subsets characterized by different excitation wavelengths, wherein the emissions of the population comprise different wavelengths or different wavelength intensities when alternately excited with the different excitation wavelengths. The additional reference, Bruchez 1998, does not appear to provide a teaching of these limitations. Bruchez 1998 describes "single-excitation"

labeling with nanocrystals. This additional reference to the combination does not provide all limitations of amended independent claim 26, the combination is not motivated, there would not have been an expectation of success and the Action fails to present a *prima facie* case.

. In Figure 2, Bruchez 1998 teaches separate nanocrystals that each have different emission spectra in response to a single excitation wavelength. Figure 1 B shows a single emission peak in response to excitation of a nanocrystal at 355 nm. Bruchez does not suggest that the disassociated excitation spectra (dotted line) of Figure 1B could alternately excite a mixed nanocrystal population or that it would result in different emissions in any of the nanocrystals described. The actual disclosure of Bruchez 1998 can not be said to teach the amended claim 26 limitations of "emissions of [a mixed nanocrystal] population compris[ing] different wavelengths or different wavelength intensities when alternately excited with the different excitation wavelengths." That is, Bruchez 1998 does not teach a mixed population of nanocrystals, does not teach different emissions from the population, and does not teach emission changes on exposure to different excitation wavelengths. Apparently, Bruchez teaches nothing having to do with amended claim 26.

Because dependent claims include the limitations of the claims upon which they are dependent, they too are not obvious.

Further, with regard to dependent claims 36 and 61, no case is made in the Action for the rejections.

With regard to claims 47 and 48, the rejections are based on an alleged statement in Bruchez that "polymers or animals can be used as detectable barriers". Applicants note that this statement does not state a case against the claims, which require the "composition [be] excitable or detectable through a barrier."

Claims are not obvious based on Cao in light of Bruchez '323 and Weiss. Claims 41, 42, 44 and 45 were rejected as allegedly obvious based on Cao, Bruchez '323 and Weiss (WO 00/55631).

Weiss describes fluorescent nanocrystals that may be linked to affinity molecules. At the cited page 15, lines 5-22, Weiss discusses that it is old to mix alloys to select an emission wavelength of a particular nanocrystal. At the cited page 53, lines 12 to

28, Weiss discusses probes that can emit, absorb, scatter or diffract to provide different wavelengths in response to an excitation. This teaching does not provide the amended claim 26 limitations not taught by Cao and Bruchez '323, described above, so can not be combined with the cited art to render any of the claims obvious.

With regard to dependent claims 41 and 42, the references do not appear to teach a subset of nanocrystals characterized by a predetermined intensity of emission. Applicants note that there is no allegation in the Action of such a teaching.

Further, with regard to dependent claim 42, the references do not appear to teach predetermination of the intensity by any of the listed means. Applicants note that there is no allegation in the Action of such a teaching.

Because the cited combination of references does not render any claims obvious, Applicants respectfully request withdrawal of the rejections.

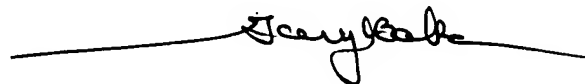
CONCLUSION

In view of the foregoing, Applicants believes all claims now pending in this application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the claims are deemed not to be in condition for allowance after consideration of this Response, a telephone interview with the Examiner is hereby requested. Please telephone the undersigned at (510) 769-3510 to schedule an interview.

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Attachments:

- 1) A transmittal sheet; and,
- 2) A receipt indication postcard.